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CLAIMS

1. A pressure muscle strength increasing apparatus comprising:  
a tight fitting device including a belt having the length  
5 that is enough to be wrapped around a predetermined range of muscles  
of one of the limbs; fastening means for fastening said belt with  
said belt being wrapped around said predetermined range of muscles;  
and a gas bag provided in or on said belt, said gas bag being adapted  
to apply a predetermined compression force to said predetermined  
10 range of muscles by means of compressing said predetermined range  
of muscles when said gas bag is filled with gas while said belt  
that has been wrapped around said predetermined range of muscles  
is fastened by said fastening means;

pressure setting means that is capable of forcing a gas into  
15 said gas bag and removing the gas from said gas bag;

control means for controlling said pressure setting means  
in order to change said compression force; and

quantification means for quantifying, at a position closer  
to the distal end of a limb than said predetermined range of muscles,  
20 a quantification target that is associated with the state of blood  
flow that varies depending on said compression force;

said control means being adapted to control said pressure  
setting means based on said quantification target.

25 2. The pressure muscle strength increasing apparatus as claimed  
in Claim 1, wherein said quantification means is adapted to quantify  
said quantification target at a given time instant, and

said control means is adapted to control said pressure  
setting means over time based on the quantification target at that

time instant.

3. The pressure muscle strength increasing apparatus as claimed in Claim 2, comprising recording means on which ideal data that  
5 is the data relating to an ideal quantification target is recorded;

said control means being adapted to compare the quantification target at a given time instant with an ideal quantification target that is represented by the ideal data read out of said recording means, and to control said pressure setting  
10 means so that the control is performed to make the quantification target at that time instant be closer to said ideal quantification target.

4. The pressure muscle strength increasing apparatus as claimed  
15 in any one of Claims 1 through 3, wherein said pressure muscle strength increasing apparatus comprising of a plurality of tight fitting devices,

said quantification means are equal in number to said tight fitting devices, each being associated with each of said tight  
20 fitting devices to quantify said quantification target on the limb which its corresponding tight fitting device is wrapped around on the distal side thereof,

said pressure setting means are equal in number to said tight fitting devices, each being associated with each of said tight  
25 fitting devices,

said control means being adapted to individually control said pressure setting means associated with the tight fitting devices that are associated with said quantification means on which the quantification targets are determined, based on each of said

quantification targets.

5. The pressure muscle strength increasing apparatus as claimed in any one of Claims 1 through 4, wherein said quantification target  
5 is at least one of Korotkoff sounds, Swan sounds, and pulse waves.

6. The pressure muscle strength increasing apparatus as claimed in Claim 2, wherein said control means is adapted to control said pressure setting means to remove the gas from said gas bag when  
10 said quantification target at that time instant falls into at least one of the following 1) to 3):

1) when the heart rate at that time instant is indicated to exceed a predetermined heart rate;

2) when the blood pressure at that time instant is indicated  
15 to become lower than a predetermined blood pressure; and

3) when pulsation at that time instant is indicated to be abnormal.

7. A control device that is used in combination with:  
20 a tight fitting device including a belt having the length that is enough to be wrapped around a predetermined range of muscles of one of the limbs, fastening means for fastening said belt with said belt being wrapped around said predetermined range of muscles, a gas bag provided in or on said belt, said gas bag being adapted  
25 to apply a predetermined compression force to said predetermined range of muscles by means of compressing said predetermined range of muscles when said gas bag is filled with gas while said belt that has been wrapped around said predetermined range of muscles is fastened by said fastening means;

a pressure setting segment that is capable of forcing a gas into said gas bag and removing the gas from said gas bag; and

a quantification segment for quantifying, at a position closer to the distal end of a limb than said predetermined range of muscles, a quantification target that is associated with the state of blood flow that varies depending on said compression force;

said control device comprising:

receiving means that receives quantification target data, which is the data about the quantification target, from each of said quantification segments;

control data generating means for generating control data for use in controlling said pressure setting segment to change said compression force based on the quantification target data that have been received; and

sending means for sending said control data to said pressure setting segment.

8. The control device as claimed in Claim 7, wherein said receiving means is adapted to receive said quantification target data over time,

said control data generating means is adapted to generate said control data over time, and

said sending means is adapted to send said control data to said pressure setting segment over time,

when said quantification segment quantifies said quantification target at a given time instant.

9. The control device as claimed in Claim 8, comprising recording means on which ideal data that is the data relating to

an ideal quantification target is recorded,

said control data generating means being adapted to compare the ideal data read out of said recording means with said quantification target data to generate said control data to control  
5 said pressure setting segment to make the quantification target data at that time instant be closer to said ideal data.

10. The control device as claimed in any one of Claims 7 through 9, wherein the control device is used in combination with a plurality  
10 of tight fitting devices,

when said quantification segments are equal in number to said tight fitting devices, each being associated with each of said tight fitting devices to quantify said quantification target on the limb which its corresponding tight fitting device is wrapped around on  
15 the distal side thereof, and

when said pressure setting segments are equal in number to said tight fitting devices, each being associated with each of said tight fitting devices,

said receiving means being adapted to receive said  
20 quantification target data over time from each of said quantification segments,

said control data generating means being adapted to individually control said pressure setting segments associated with the tight fitting devices that are associated with said  
25 quantification segments on which the quantification targets are determined, based on each of said quantification target data.

11. The control device as claimed in any one of Claims 7 through 10, wherein said quantification target is at least one of Korotkoff

sounds, Swan sounds, and pulse waves.

12. The control device as claimed in Claim 8, wherein said control data generating means is adapted to generate control data for use  
5 in controlling said pressure setting segment to remove the gas from said gas bag when said quantification target at that time instant falls into at least one of the following 1) to 3):

1) when the heart rate at that time instant is indicated to exceed a predetermined heart rate;

10 2) when the blood pressure at that time instant is indicated to become lower than a predetermined blood pressure; and

3) when pulsation at that time instant is indicated to be abnormal.

15 13. A method that is carried out in control device that is used in combination with:

a tight fitting device including a belt having the length that is enough to be wrapped around a predetermined range of muscles of one of the limbs, fastening means for fastening said belt with  
20 said belt being wrapped around said predetermined range of muscles, a gas bag provided in or on said belt, said gas bag being adapted to apply a predetermined compression force to said predetermined range of muscles by means of compressing said predetermined range of muscles when said gas bag is filled with gas while said belt  
25 that has been wrapped around said predetermined range of muscles is fastened by said fastening means;

a pressure setting segment that is capable of forcing a gas into said gas bag and removing the gas from said gas bag; and

a quantification segment for quantifying, at a position

closer to the distal end of a limb than said predetermined range of muscles, a quantification target that is associated with the state of blood flow that varies depending on said compression force;

said method comprising:

5       a step for receiving quantification target data, which is the data about the quantification target, from each of said quantification segments;

10       a step for generating control data for use in controlling said pressure setting segment to change said compression force based on the quantification target data that have been received; and

      a step for sending said control data to said pressure setting segment.

15   14.   A pressure muscle strength increasing apparatus comprising:  
      a tight fitting device which is intended to encircle a predetermined range of muscles of one of the limbs, is intended to apply a predetermined compression force to said predetermined range of muscles by means of compressing said predetermined range  
20   of muscles, and is designed so that said compression force can be varied;

      pressure setting means for use in controlling the compression force provided by said tight fitting device;

25       control means for controlling said pressure setting means in order to change said compression force; and

      quantification means for quantifying, at a position closer to the distal end of a limb than said predetermined range of muscles, a quantification target that is associated with the state of blood flow that varies depending on said compression force;

said control means being adapted to control said pressure setting means based on said quantification target.

15. A control device that is used in combination with:

5 a tight fitting device which is intended to encircle a predetermined range of muscles of one of the limbs, is intended to apply a predetermined compression force to said predetermined range of muscles by means of compressing said predetermined range of muscles, and is designed so that said compression force can be  
10 varied;

a pressure setting segment for use in controlling the compression force provided by said tight fitting device; and

a quantification segment for quantifying, at a position closer to the distal end of a limb than said predetermined range  
15 of muscles, a quantification target that is associated with the state of blood flow that varies depending on said compression force;

said control segment comprising:

receiving means that receives quantification target data, which is the data about the quantification target, from each of  
20 said quantification segments;

control data generating means for generating control data for use in controlling said pressure setting segment to change said compression force based on the quantification target data that have been received; and

25 sending means for sending said control data to said pressure setting segment.

16. A method that is carried out in a control device that is used in combination with:



a tight fitting device which is intended to encircle a predetermined range of muscles of one of the limbs, is intended to apply a predetermined compression force to said predetermined range of muscles by means of compressing said predetermined range of muscles, and is designed so that said compression force can be varied;

a pressure setting segment for use in controlling the compression force provided by said tight fitting device; and

a quantification segment for quantifying, at a position closer to the distal end of a limb than said predetermined range of muscles, a quantification target that is associated with the state of blood flow that varies depending on said compression force;

said method comprising:

a step for receiving quantification target data, which is the data about the quantification target, from each of said quantification segments;

a step for generating control data for use in controlling said pressure setting segment to change said compression force based on the quantification target data that have been received; and

a step for sending said control data to said pressure setting segment.